

REMARKS

Applicants have now had an opportunity to carefully consider the Examiner's comments set forth in the Office Action of May 28, 2008. Reexamination and reconsideration are respectfully requested.

Claims 1-14 and 20- 26 are present in this application.

Claims 1, 9, 11, 12, and 20 are amended.

New claim 26 is added.

The Office Action

Claim 12 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

Claims 1-14 and 20-25 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,959,583 to Arsena, et al., in view of U.S. Patent No. 3,687,713 to Adams.

For the reasons outlined below, it is submitted that the claims are in condition for allowance.

§112 Rejections

Applicants wish to thank the Examiner for her helpful suggestions for amending claim 12. Applicants have amended claim 12 to attend to the §112 rejection. Accordingly, it is respectfully requested that the §112 rejections be withdrawn.

§103 Rejections

Claim 1 has been amended to recite a method of forming a lamp which includes providing a layer of a reflective material and providing a protective layer of silica in contact with the silver layer which protects the layer of reflective material against oxidation and sulfide formation. Neither Arsena nor Adams discloses such a method. Arsena provides no protection for the reflector. None is needed. The inner confines of the lamp are filled with a fill gas (col. 3, lines 2-9). It can be presumed that the fill gas prevents oxygen and sulfide damage of the silver reflector. Thus, there is no motivation for providing a protective surface, such as that of Adams', in Arsena's lamp.

Moreover, Adams discloses covering the silver with a layer of alumina, which is in contact with the silver layer. A layer of quartz is placed on top of the alumina. There is no suggestion of replacing the alumina layer of Adams with a silica layer.

Accordingly, it is submitted that claim 1, and claims 2, 3, 5-8, 13, 14, and 21 dependent therefrom, distinguish over the references of record.

Claim 4 recites a method of forming a lamp which includes providing a protective layer which protects the layer of reflective material against oxidation and sulfide formation and forming the lamp from the interior surface and a light source, a thickness of the protective layer being selected such that a color correction temperature of the lamp is greater than a color correction temperature of the light source.

The combination of Arsena with Adams does not suggest such a lamp. Arsena provides no protection for the reflector. None is needed. The inner confines of the lamp 10 of Arsena are filled with a fill gas (col. 3, lines 2-9). It can be presumed that the fill gas prevents oxygen and sulfide damage of the silver reflector. Thus, there is no motivation for providing a protective surface, such as that of Adams', in Arsena's lamp.

Further, there is no suggestion that the two layers of Adams', alumina and quartz, are able to provide a color temperature which is greater than that of Arsena's lamp. Adams states that the layer of quartz provides enhancement of the reflected light, but the color correction temperature of the lamp is not mentioned. Rather, in the later paragraph referred to by the Examiner, Adams notes that the reflectivity at longer wavelengths is reduced, which would tend to suggest that the CCT is reduced rather than increased.

Applicants have found that by careful selection of the optical thickness of the protective layer, that the CCT of the lamp can be increased.

Accordingly, it is submitted that claim 4, and claim 24 dependent therefrom, distinguish over the references of record.

Claim 11 has been placed in independent form and now recites a method which includes providing a protective layer which protects a layer of reflective material against oxidation and sulfide formation, the protective layer comprising silica and having a thickness in one of the following ranges: 50-200 Å and 2600-3250 Å.

The combination of Arsena with Adams does not suggest such a lamp. Arsena provides no protection for the reflector. None is needed. The inner confines of the lamp are filled with a fill gas (col. 3, lines 2-9). It can be presumed that the fill gas prevents oxygen and sulfide damage of the silver reflector. Thus, there is no motivation for providing a protective surface, such as that of Adams', in Arsena's lamp.

Adams provides a layer of quartz which is 1100 Angstroms thick. There is no suggestion of providing a layer which is 50-200 Å or 2600-3250 Å. Applicants have found a periodic variation in lamp properties, allowing thicker or thinner protective layers to provide similar properties.

Accordingly, it is submitted that claim 11, and claim 26 dependent therefrom, distinguish over the references of record.

Claim 12 recites a method of forming a lamp which includes forming a lamp from an interior surface and a light source, with a protective layer having an optical thickness t_{OPT} which satisfies the relationship:

$1.1(1+0.9n)$ quarterwavelengths $\leq t_{OPT} \leq 1.4(1+0.9n)$ quarterwavelengths, where n is an integer from 1 to 5.

The combination of Arsena with Adams does not suggest such a lamp. Arsena provides no protection for the reflector. None is needed. The inner confines of the lamp are filled with a fill gas (col. 3, lines 2-9). It can be presumed that the fill gas prevents oxygen and sulfide damage of the silver reflector. Thus, there is no motivation for providing a protective surface, such as that of Adams', in Arsena's lamp.

Adams provides a layer of quartz which is 1100 Angstroms thick. There is no suggestion of providing a layer which satisfies the claimed relationship in which n is at least 1.

Accordingly, it is submitted that claim 12, and claims 9, 10, and 25 dependent therefrom, distinguish over the references of record.

Claim 20 recites a method of forming a lamp which includes determining oscillating functions when color correction temperature and percent reflectance are plotted against optical thickness for a lamp formed from the reflective surface and a protective layer and covering the reflective surface with a protective layer which is light transmissive, the optical thickness of the protective layer being selected, based on the oscillating functions.

The combination of Arsena with Adams does not suggest such a lamp. Arsena provides no protection for the reflector. None is needed. The inner confines of the lamp are filled with a fill gas (col. 3, lines 2-9). It can be presumed that the fill gas prevents oxygen and sulfide damage of the silver reflector. Thus, there is no motivation for providing a protective surface, such as that of Adams', in Arsena's lamp.

Further, Adams makes no suggestion of determining an oscillating functions for color correction temperature and percent reflectance against optical thickness for a lamp

formed from the reflective surface and a protective layer and covering the reflective surface with a protective layer which is light transmissive, the optical thickness of the protective layer being selected, based on the oscillating functions, such that the recited relationships are satisfied.

The Examiner argues that the disclosure of choosing the protective thickness to be satisfied by the disclosure of alumina at the quarter wavelength thickness is comparable to plotting an oscillating function. Applicants respectfully traverse. Moreover, as is evident from FIGURE 2, analysis of both reflectance and CCT oscillating functions provides an improved method for selecting the optical thickness since these functions are offset.

Accordingly, it is submitted that claim 20 distinguishes over the references of record.

☒ Remaining Claims, as delineated below:

(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT LESS HIGHEST NUMBER PREVIOUSLY PAID FOR		(3) NUMBER EXTRA
TOTAL CLAIMS	21	- 20 =	1
INDEPENDENT CLAIMS	5	- 4 =	1

CONCLUSION

For the reasons detailed above, it is respectfully submitted all claims remaining in the application (Claims 1-14 and 20-26) are now in condition for allowance. The foregoing comments do not require unnecessary additional search or examination.

In the event the Examiner considers personal contact advantageous to the disposition of this case, she is hereby authorized to call the undersigned, at Telephone Number (216) 861-5582.

Respectfully submitted,

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